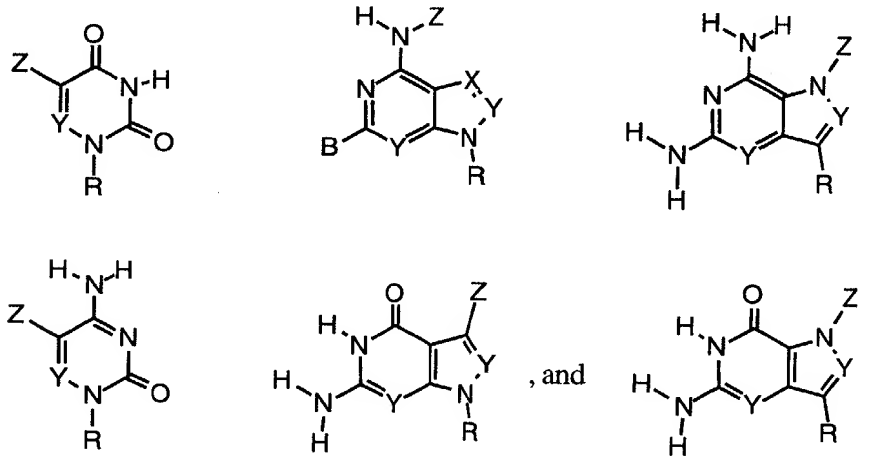
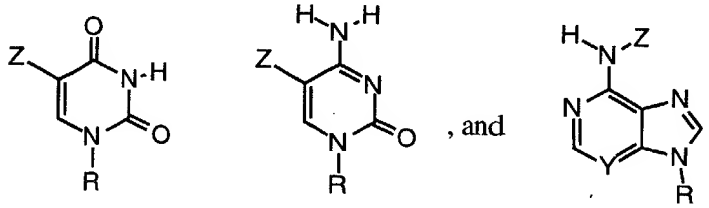
$-CH_2CH_2CH_2$-imidazole, $-CH_2CH_2$-imidazole, lower alkyl, $-CH_2$-imidazole, and $-CH_2CH_2CH_2CH_2CH_2CH_2-NH_2$.

Claim 7 (amended). An [The] improvement [of claim 6 wherein said nucleobase is] in a method for creating a catalyst for a preselected reaction, said method comprising:
a) synthesizing a mixture of oligonucleotides from nucleotide building blocks each having a region of randomized sequence
b) incubating said mixture under conditions where oligonucleotides that catalyze said reaction undergo as a result of their catalytic activity a chemical transformation that makes them preferentially [partitionable] separable from other oligonucleotides in the mixture having less catalytic activity [or amplifiable to oligonucleotides in the remainder of the mixture that have diminished or none of said catalytic activity],
c) [partitioning] separating the oligonucleotides with increased catalytic activity from the other oligonucleotides in the mixture
d) [amplifying] copying the oligonucleotides having increased [affinity] catalytic activity *in vitro* to yield a mixture of oligonucleotides enriched in those with increased [affinity] catalytic activity [for said target],
wherein the improvement comprises including among said nucleotide building blocks those carrying nucleobases selected from the group consisting of



wherein -R designates the point of attachment to the ribose or 2'-deoxyribose ring, B is selected from the group consisting of -H or $-NH_2$, X is either a nitrogen atom or a carbon atom bearing a substituent Z, Z is [either a hydrogen,] an unfunctionalized lower alkyl, alkynyl, or alkyl-alkynyl chain, or a lower alkyl, alkynyl , or alkyl-alkynyl chain bearing an amino, carboxyl, hydroxy, thiol, aryl, indole, or imidazoyl group, Y is either N or CH, and the ring contains no more than three nitrogens consecutively bonded.

Claim 8 (amended). The improvement of Claim [6] 7, wherein said nucleobase is selected from the group consisting of



wherein -R designates the point of attachment to the ribose or 2'-deoxyribose ring, and wherein Z is selected from the group consisting of $-C\equiv C-CH_2-NH_2$, $-C\equiv C-CH_2-SH$, $-CH_2CH_2CH_2-NH_2$, $-CH_2CH_2CH_2-SH$, $-CH_2-NH_2$, $-CH_2-SH-$, $CH_2CH_2-NH_2$, $-CH_2CH_2-SH$,

$-CH_2CH_2CH_2$-imidazole, $-CH_2CH_2$-imidazole, lower alkyl, $-CH_2$-imidazole, and $-CH_2CH_2CH_2CH_2CH_2CH_2-NH_2$.

Claim 9 (amended). An improvement in a method for creating a catalyst for a preselected reaction, said method comprising:
a) synthesizing a mixture of oligonucleotides from nucleotide building blocks each having a region of randomized sequence
b) incubating said mixture under conditions where oligonucleotides that catalyze said reaction undergo as a result of their catalytic activity a chemical transformation that makes them preferentially [partitionable] separable from other oligonucleotides in the mixture having less catalytic activity [or amplifiable to oligonucleotides in the remainder of the mixture that have diminished or none of said catalytic activity],
c) [partitioning] separating the oligonucleotides with increased catalytic activity from the other oligonucleotides in the mixture
d) [amplifying] copying the oligonucleotides having increased [affinity] catalytic activity *in vitro* to yield a mixture of oligonucleotides enriched in those with increased [affinity] catalytic activity [for said target],
wherein said improvement comprises:
e) including an organic cofactor during step (b) [an organic cofactor], wherein said organic cofactor [carries an organic functional group that] binds noncovalently to the oligonucleotides [so enriched] and carries functionality not present on natural oligonucleotides.